BENCHMARK COST MODEL

SWITCHING COSTS

- Line Sensitive Switch Costs Per Household =
  Per Line Switch Cost * Land & Building Factor/ Switch Fill Factor

Where:

- » Per Line Switch Cost = $238.87
- » Land & Building Factor = 1.043
- » Switch Fill Factor = 0.80

BENCHMARK COST MODEL

PURPOSE OF ANNUAL COST FACTORS

- The BCM Produces Investments in Plant Used to Provide Basic Local Service - No Direct Calculation of Expenses

- Annual Cost Factors are Applied to Investment Amounts to Determine the Recurring Cost of Service, Including Return, Depreciation, Taxes and Operating Expenses

BENCHMARK COST MODEL

TWO ANNUAL COST FACTORS USED

- Cost Factor #1 is Derived From Historical Accounting Data for Tier 1 LECs
- Cost Factor #2 is Based on the Hatfield Associates Study of the Cost of Basic Universal Service

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September 22, 1995

BENCHMARK COST MODEL

COST FACTOR #1

- Factor is 31.6765%
- Derived from 1994 ARMIS Form 43-01 for Tier 1 LECs
- Represents Broad-Gauge Historical Relationship Between Investments and Expenses

BENCHMARK COST MODEL

COST FACTOR #2

- Factor is 22.97%
- Based on '94 Study by Hatfield Associates
- In General, Uses ARMIS Data for RBOCs
- Excludes Some Expense Categories as not Related to Basic Universal Service
- Uses Overhead Loading Factor of 10% — corp operations, plus some other
- Billing Expenses Based on Incremental Cost Data

MCI, SPRINT, NYNEX, U S WEST
September 22, 1995

4. Determining Monthly Basic Local Service Costs

Throughout the BCM process, all cost calculations are derived in terms of investment. In order to determine a monthly cost for basic local service by CBG, the individual investments for the piece parts must be summed to include loop and structure investments, electronic circuit equipment investments, and switching investments. An annual cost factor is applied to total investment and divided by 12 to estimate a monthly cost of basic local service.

For purposes of this model, two different annual cost factors are considered. The two factors represent two views of the appropriate level of expenses attributable to basic local service, and provides upper and lower boundaries for the discussion of the monthly cost of basic service. The first annual cost factor of 31.6765% is based on historical accounting data and total expense levels of the Tier 1 LECs, utilizing the following 1994 ARMIS Form 43-01 source data: Rows 1010-1090; 1120-1190; 1290; 1320-1390; 1410-1490; 1510-1590; 1620-1690; 1705-1790; 1820-1890; and 1919-1920. The second annual cost factor of 22.97% is based on the inclusion of limited expense categories and limited expense amounts, and uses the following assumptions based on the Hatfield/MCI Study approach:

- Investment-related expenses of depreciation and after-tax return on investment (ROI)
  - ROI = 9.5%
  - 45/55 Debt to Equity Ratio
  - 11.0% Cost of Equity
  - Combined Federal and State Tax Rate of 39 percent
  - 18 year Wtd. Avg. Service Life in Calculating Depreciation

- Operating and Maintenance Expenses Partially Attributable to Basic Local Service
  - Network Support
  - General Support
  - Central Office Switching
  - Central Office Transmission
  - Cable and Wire
  - Provisioning
  - Network Operations
  - Call Completion
  - Billing and Collection

- Excluded Expenses
  - Some Customer Services Expenses
  - Marketing Expenses
  - Product Development Expenses

- General and Administrative Expenses
  - 10% Gross-Up included for Overhead

June 14, 1996 VIA OVERNIGHT DELIVERY

Secretary
Federal Communications Commission
1919 M Street, NW
Washington, D.C. 20554

RE: Docket 96-45 Ex-Parte Presentation

On June 13, 1996 I met with Mr. Ken McClure, Vice Chairman of the Missouri Public Service Commission and Ms. Martha Hogarty, Public Counsel of Missouri who are both members of the Federal-State Joint Board in CC Docket #96-45. The meeting was held in Ms. Hogarty's office in Jefferson City, Missouri. Also attending the meeting were Ms Barb Meisenheimer and Mr. Mike Dandino of Ms. Hogarty's staff and Mr. W. R. England, an attorney that represents small telephone companies.

The purpose of the meeting was to review in some detail the Benchmark Costing Model, its assumptions, and logic and the bulk of the time was spent on this subject. The discussion also encompassed issues related to the uses for the Benchmark Costing Model and other proxy models that have been proposed in various dockets before the FCC. In the course of discussion, the some of the differences between the Benchmark Costing Model and the Hatfield models were discussed.

Enclosed is a copy of the handout material describing the Benchmark Costing Model that was used in the discussion. This filing is being made with an original and one copy.

Because of the location of the meeting in Missouri and my office location in Colorado, I was unable to make this filing in Washington, D.C. on the day that the meeting took place. Please accept this filing for the record even though it is being filed longer than the FCC rule requirements. A copy of this filing will be faxed to your office on Friday, June

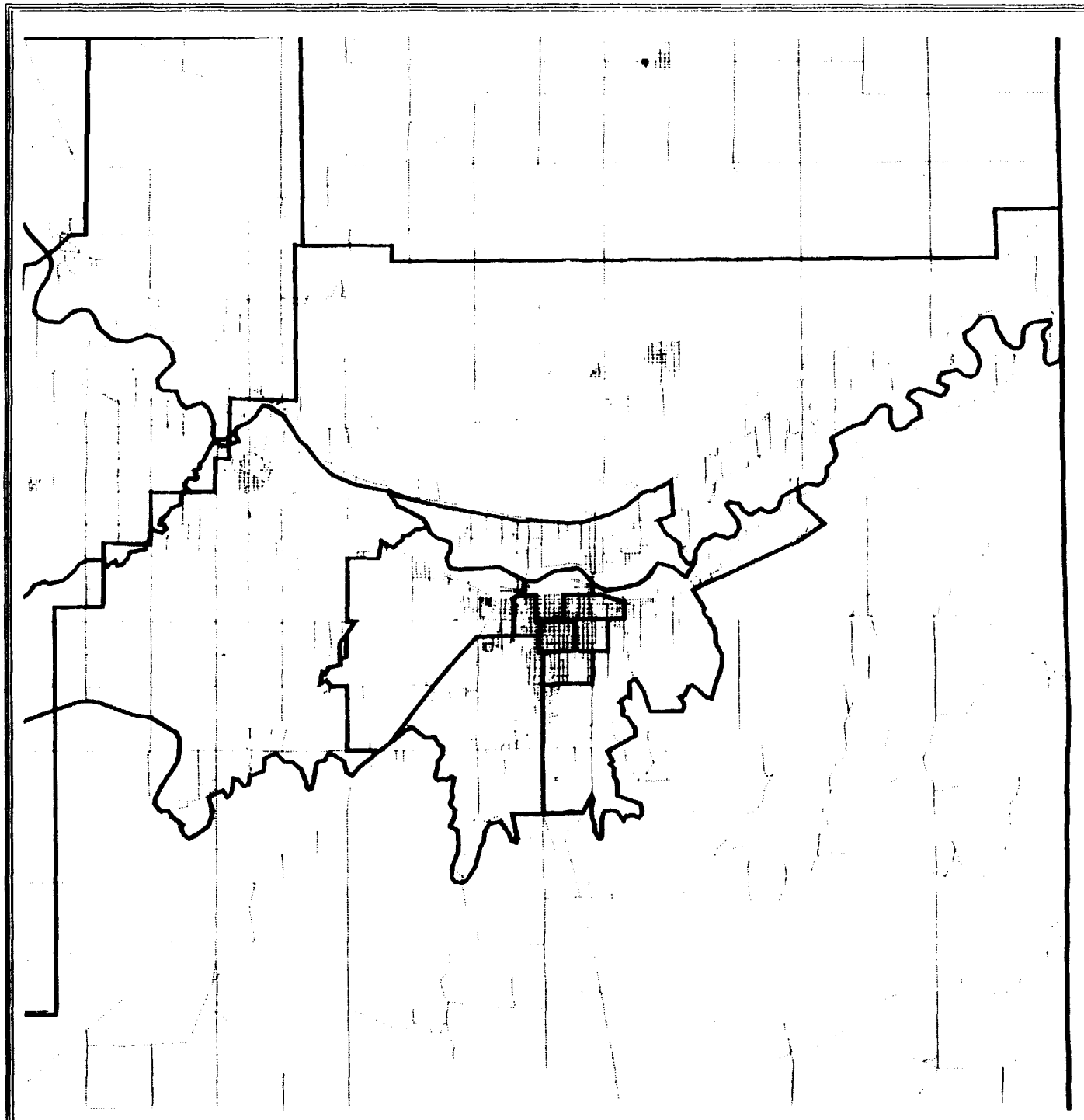
GVNW INC./MANAGEMENT
2270 La Montana Way (80918) P.O. Box 25969 (80936) Colorado Springs, CO (719) 594-5800 FAX: (791) 599-0968

14, 1996. The original and additional copy will be sent by overnight delivery for delivery on Monday, June 17.

Sincerely,

Robert C. Schoonmaker
Vice President

C: Mr. Ken McClure, Missouri Public Service Commission
Ms. Martha Hogarty, Missouri Public Counsel



SAMPLE OF RURAL CENSUS BLOCK GROUPS

LA JUNTA COLORADO

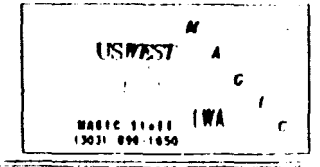
LEGEND

- CENSUS BLOCK GROUP
- WIRE CENTER
- STREETS
- CENTRAL OFFICE

0 2 4

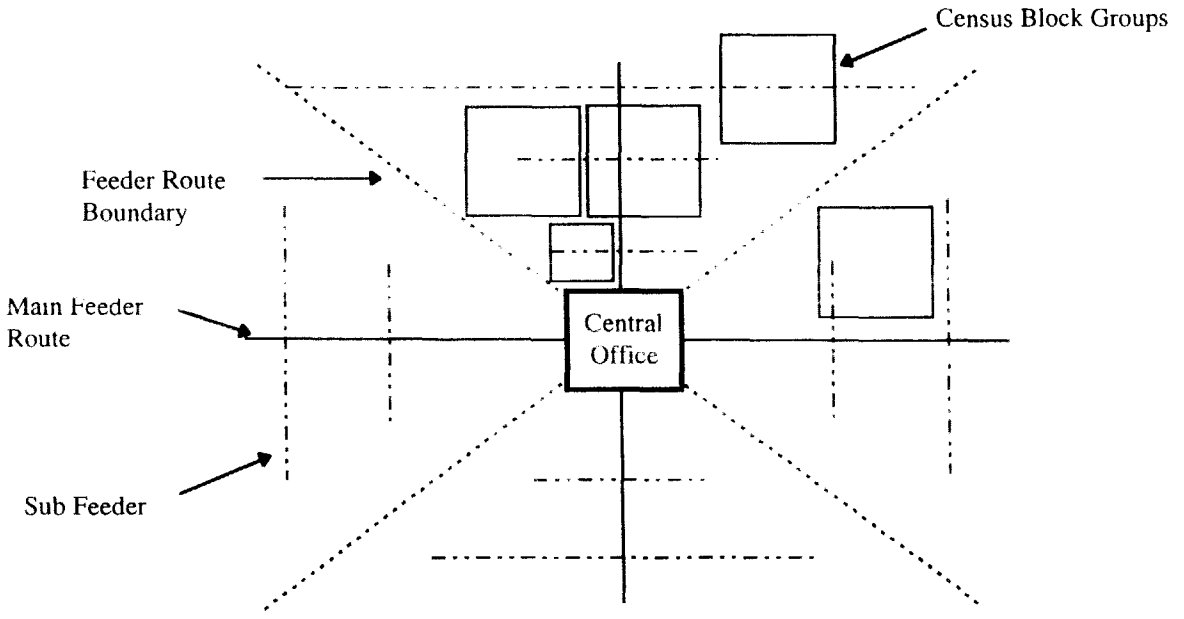
MILES

09/28/94



BENCHMARK COST MODEL

FEEDER PLANT



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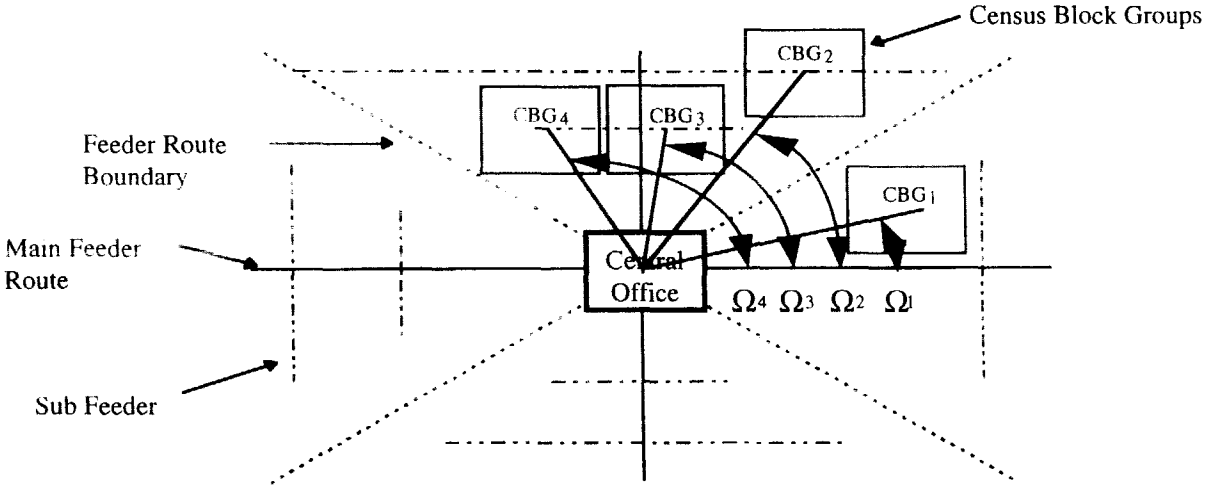
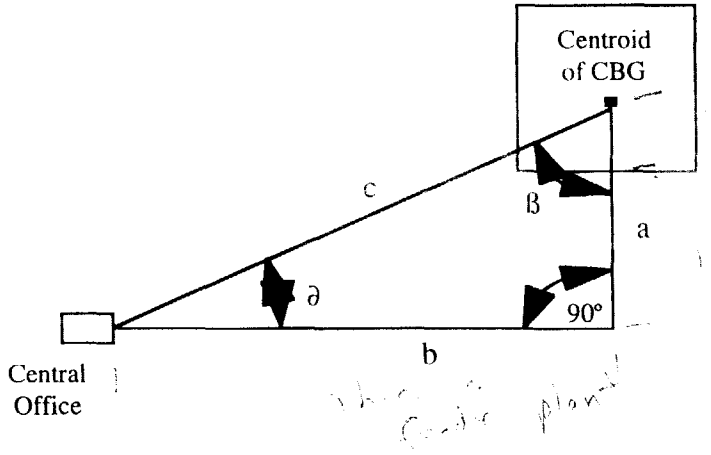
BENCHMARK COST MODEL

DETERMINATION OF FEEDER QUADRANT



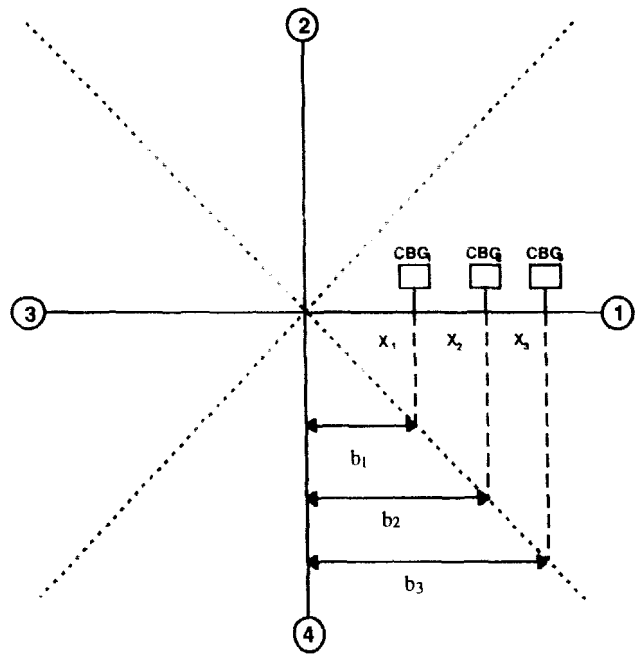
BENCHMARK COST MODEL

FEEDER DISTANCE CALCULATION



BENCHMARK COST MODEL

SHARED FEEDER DISTANCE CALCULATION



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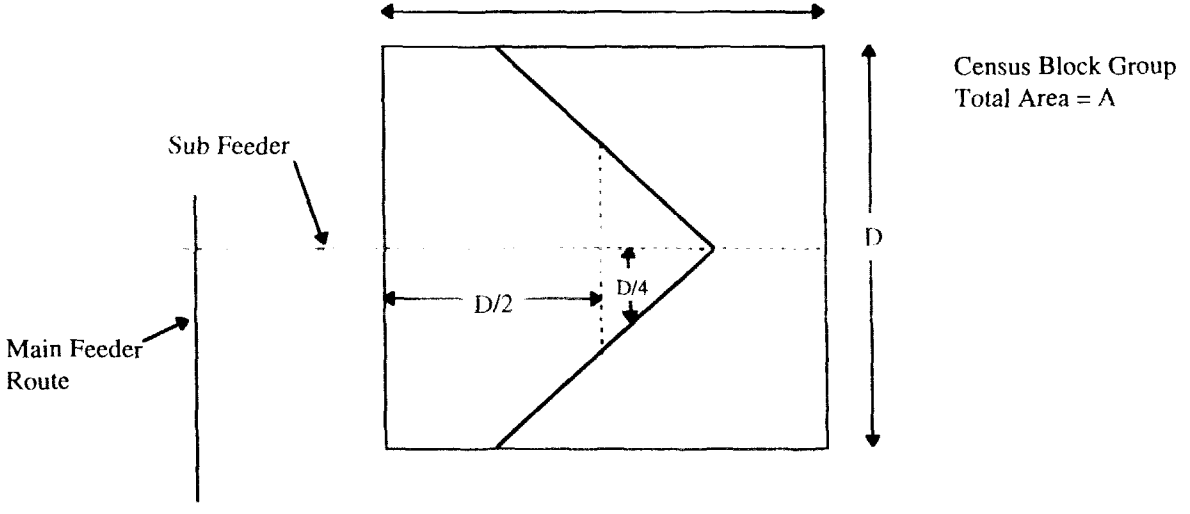
September 22, 1995

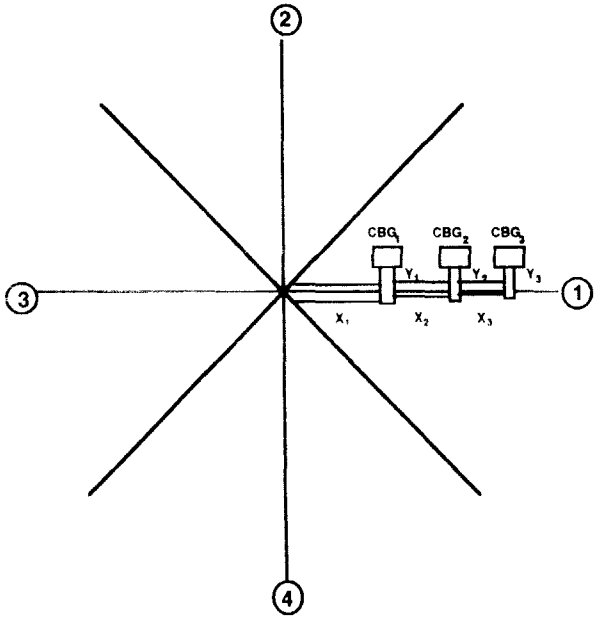
BENCHMARK COST MODEL

DISTRIBUTION PLANT DISTANCE



BENCHMARK COST MODEL

SEGMENT CABLE SIZE



BENCHMARK COST MODEL

CABLE CAPACITY FOR SHARED FEEDER PLANT

- Copper
  - Sum of HH's Riding Feeder Segment/Segment Fill Factor
- Fiber For SLC (Min 4 Fibers Per CBG)
  - 4 Fibers For Capacity Up to 672 VG Paths Per CBG
  - 4 Additional Fibers For Each Increment of 672 VG Path
- Fiber For AFC (4 Fibers Until Capacity)
  - 4 Fibers For Capacity Up to 672 VG Paths
  - 4 Additional Fibers For Each Increment of 672 VG Paths

BENCHMARK COST MODEL

FEEDER & DISTRIBUTION CABLE SIZE

- Each Feeder Segment Cable Size Determined From Segment Capacity

- If Max Size Cable < Capacity, Then # of Max Size Cables Plus Next Cable Size to Meet or Exceed Capacity

BENCHMARK COST MODEL

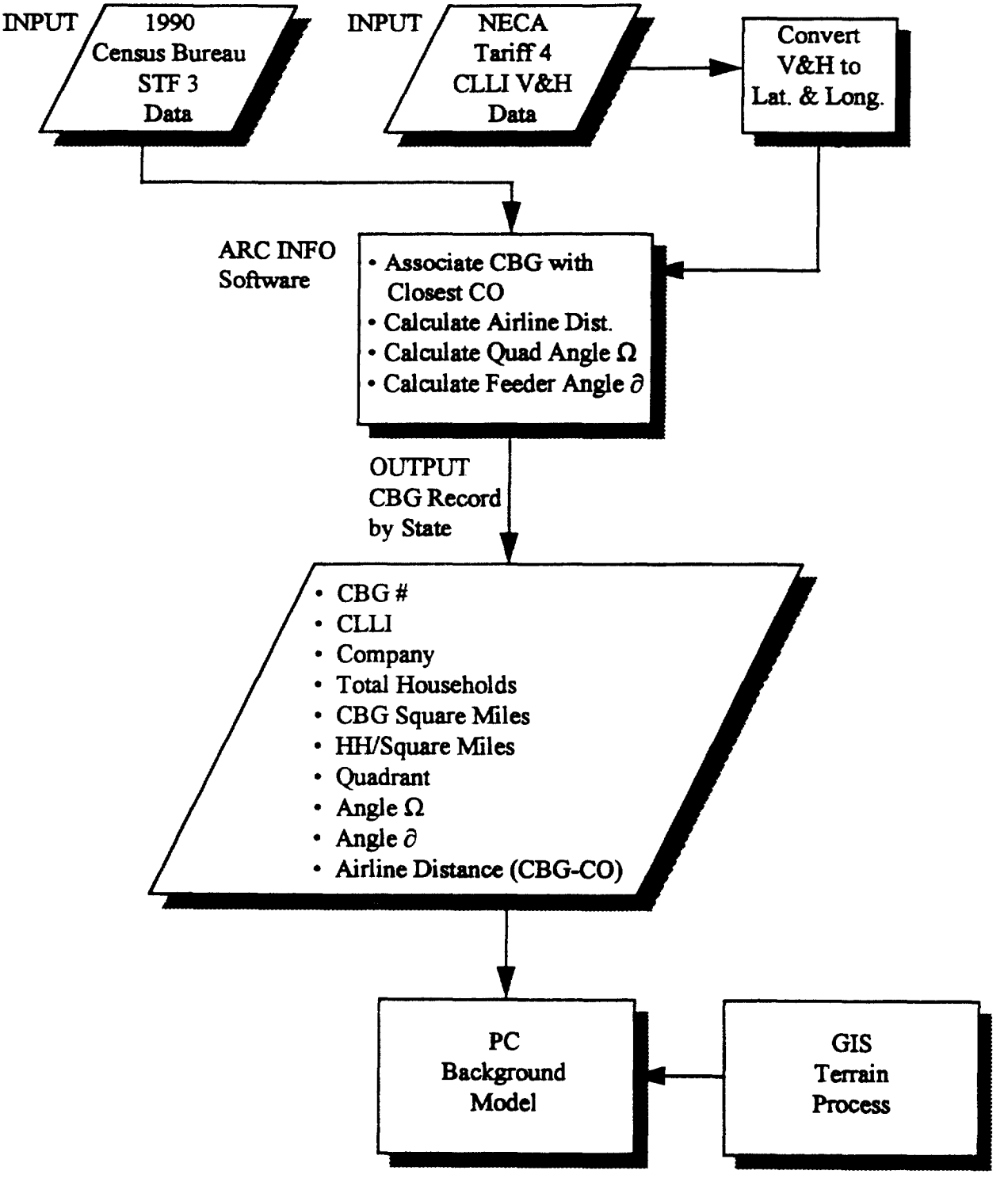
FEEDER & DISTRIBUTION CABLE SIZE

- Fiber Cable Table (# Strands)
  - 12, 18, 24, 36, 48, 60, 72, 96, 144

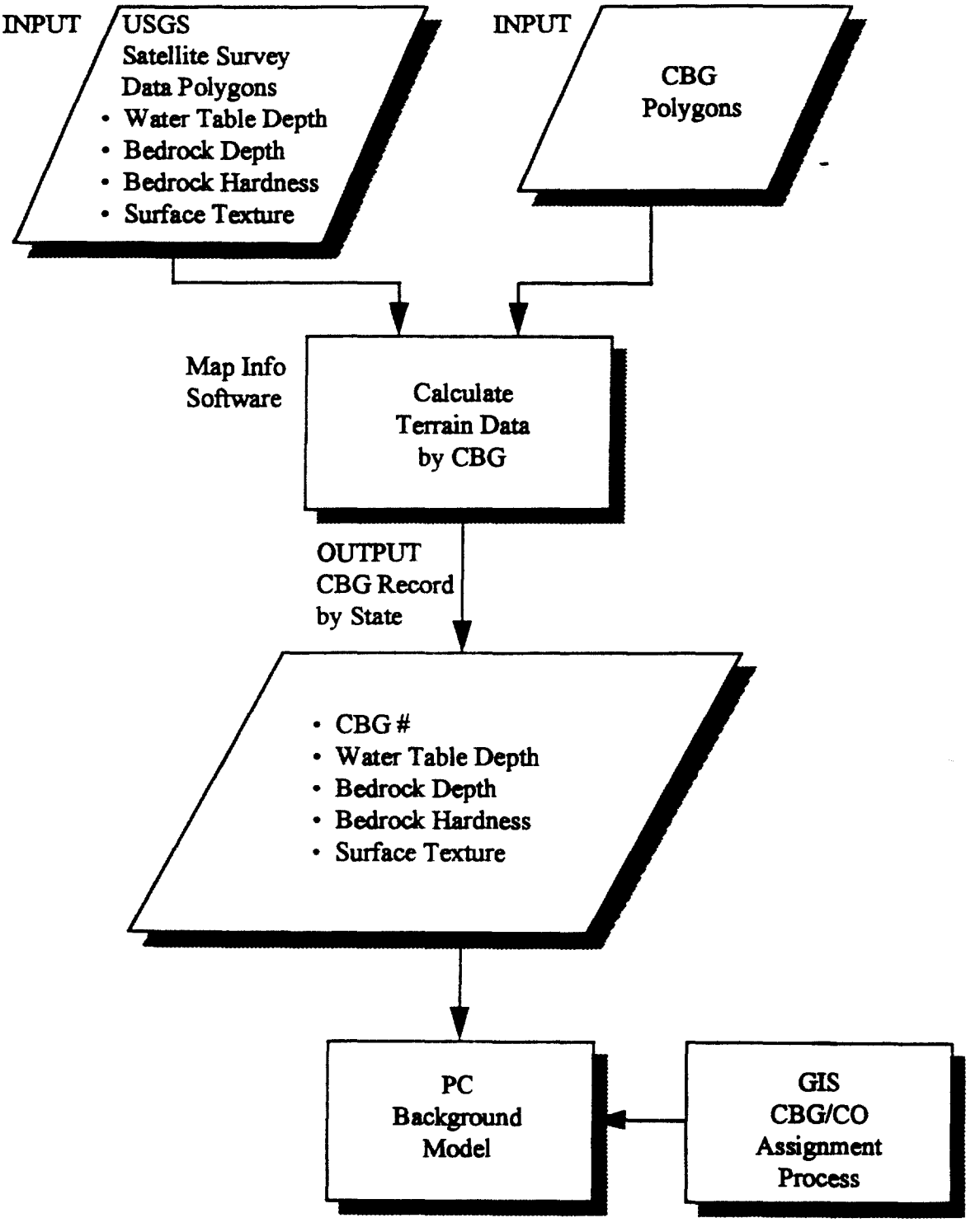
- Copper Cable Table (# Pairs)
  - 50 (Dist. Only), 100, 200, 400, 600, 900, 1200, 1800, 2400, 3000, 3600, 4200 (Feeder Only)

2. Process Flowcharts

GIS Process for Assigning CBGs to Closest Central Office



GIS Process for Assigning Terrain Indicators to CBG



USER INPUTS TO MODEL

4200 =Maximum Copper Feeder Cable Size

3600 =Maximum Copper Distribution Cable Size

Fill Factors for Electronics

0.8 AFC
0.8 SLC

SLC Cost per Access Line
500

AFC Cost per Access Line
550

Cable Fill factors

	Feeder	Distribution
0	0.65	0.25
5	0.75	0.35
200	0.8	0.45
650	0.8	0.55
850	0.8	0.65
2550	0.8	0.75

Enter 2 digit whole percentage numbers for the following data:

Fiber Feeder UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	60	40
5-200	65	35
200-650	70	30
650-850	80	20
850-2550	90	10
>2550	100	0

Fiber Cable Discount % (Enter whole % in space below)
20

Copper Cable Discount % (Enter whole % in space below)
20

AFC Electronics Discount %
10

Copper Feeder UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	60	40
5-200	65	35
200-650	70	30
650-850	80	20
850-2550	90	10
>2550	100	0

SLC electronics Discount %

20

Distribution UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	90	10
5-200	80	20
200-650	70	30
650-850	65	35
850-2550	60	40
>2550	50	50

Copper Distribution Costs

Cable Size	Cost UG	Cost Aerial
3600	22.20	21.90
3000	18.80	18.50
2400	14.30	14.10
1800	12.44	12.24
1200	10.68	10.00
900	7.82	7.51
600	7.13	7.05
400	4.56	4.62
200	2.36	2.33
100	1.262	1.266
50	0.675	0.572

Fiber Cable Costs

Cable Size	Cost UG	Cost Aerial
144	5.56	5.24
96	3.80	3.53
72	2.84	2.65
60	2.41	2.23
48	1.98	1.84
36	1.60	1.46
24	1.18	1.05
18	0.98	0.85
12	0.79	0.66

Copper Feeder Costs

Cable Size	Cost UG	Cost Aerial
4200	25.70	25.40
3600	22.20	21.90
3000	18.80	18.50
2400	14.30	14.10
1800	12.44	12.24
1200	10.68	10.00
900	7.82	7.51
600	7.13	7.05
400	4.56	4.62
200	2.36	2.33
100	1.262	1.266

Urban Copper Cable Table

Cost Multiplier		
Structure	UG $	Aerial $
RockH	1.53	0.69
RockS	1.22	0.48
Normal	1.11	0.48

Rural Copper Cable Table

Cost Multiplier		
Structure	UG $	Aerial $
RockH	0.66	0.8
RockS	0.35	0.54
Normal	0.21	0.44

Urban Fiber Table

Cost Multiplier		
Structure	UG $	Aerial $
RockH	9.02	3.5
RockS	7.22	2.5
Normal	6.56	2.5

Rural Fiber Table

Cost Multiplier		
Structure	UG $	Aerial $
RockH	3	4.25
RockS	1.45	2.9
Normal	1.02	2.3

Surface texture table

Texture	Impact?	Description of Texture
	0	Blank
BY	1	Bouldery
BY-SICL	1	Bouldery & Silty Clay Loam
BYV	1	Very bouldery
BYV-FSL	1	Very Bouldery & Fine Sandy Loa
BYV-L	1	Very bouldery & Loamy
BYV-LS	1	Very Bouldery & Loamy Sand
BYV-SIL	1	Very Bouldery & Silt
BYV-SL	1	Very bouldery & Sandy Loam
BYX	1	Extremely Bouldery
BYX-L	1	Extremely Bouldery & Loamy
BYX-SIL	1	Extremely Bouldery & Silt Loam
C	0	Clay
CB	0	Cobbly
CBA	1	Angular Cobbly
CB-C	0	Cobbly & Clay
CB-CL	0	Cobbly & Clay Loam
CB-COSL	0	Cobbly & Coarse Sandy Loam
CB-L	0	Cobbly & Loamy
CB-LS	0	Cobbly & Loamy Sand
CB-S	0	Cobbly & Sand
CB-SIL	0	Cobbly & Silt Loam

CostFactorTable

Row #	Plant Type	Urban/RuraL	Density	Surface Category	Weighted Cost Factor
1	Distribution	Urban	>2550	RockH	1.4208
2				RockS	1.088
3				Normal	1.0176
4	Distribution	Urban	850-2550	RockH	1.194
5				RockS	0.924
6				Normal	0.858
7	Distribution	Rural	650-850	RockH	0.709
8				RockS	0.4165
9				Normal	0.2905
10	Distribution	Rural	200-650	RockH	0.702
11				RockS	0.407
12				Normal	0.279
13	Distribution	Rural	5-200	RockH	0.688
14				RockS	0.388
15				Normal	0.256
16	Distribution	Rural	0-5	RockH	0.674
17				RockS	0.369
18				Normal	0.233
19	Feeder	Urban	>2550	RockH	1.9584
20				RockS	1.5616
21				Normal	1.4208
22	Feeder	Urban	850-2550	RockH	1.446
23				RockS	1.146
24				Normal	1.047
25	Feeder	Rural	650-850	RockH	0.688
26				RockS	0.388
27				Normal	0.256
28	Feeder	Rural	200-650	RockH	0.702
29				RockS	0.407
30				Normal	0.279
31	Feeder	Rural	5-200	RockH	0.709
32				RockS	0.4165
33				Normal	0.2905
34	Feeder	Rural	0-5	RockH	0.716
35				RockS	0.426
36				Normal	0.302
37	Fiber	Urban	>2550	RockH	11.5456
38				RockS	9.2416
39				Normal	8.3968
40	Fiber	Urban	850-2550	RockH	8.468
41				RockS	6.748
42				Normal	6.154
43	Fiber	Rural	650-850	RockH	3.25
44				RockS	1.74
45				Normal	1.276
46	Fiber	Rural	200-650	RockH	3.375
47				RockS	1.885
48				Normal	1.404
49	Fiber	Rural	5-200	RockH	3.4375
50				RockS	1.9575
51				Normal	1.468
52	Fiber	Rural	0-5	RockH	3.5
53				RockS	2.03
54				Normal	1.532

1.28

Distribution UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	90	10
5-200	80	20
200-650	70	30
650-850	65	35
850-2550	60	40
>2550	50	50

Copper Feeder UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	60	40
5-200	65	35
200-650	70	30
650-850	80	20
850-2550	90	10
>2550	100	0

Fiber Feeder UG/Aerial Mix Table

Density	UG%	Aerial%
0-5	60	40
5-200	65	35
200-650	70	30
650-850	80	20
850-2550	90	10
>2550	100	0

CB-SL	1	Cobbly & Sandy Loam
CBV	1	Very cobbly
CBV-C	1	Very Cobbly & Clay
CBV-CL	1	Very Cobbly & Clay Loam
CBV-L	1	Very cobbly & Loamy
CBV-SIL	1	Very Cobbly & Silt
CBV-SL	1	Very Cobbly & Sandy Loam
CBX	1	Extremely Cobbly
CE	0	Coprogenous Earth
CIND	0	Cinders
CL	0	Clay Loam
CM	1	Cemented
CN	0	Channery
CN-FSL	0	Channery & Fine Sandy Loam
CN-L	0	Channery & Loam
CN-SIL	0	Channery & Silty Loam
CN-SL	0	Channery & Sandy Loam
CNV	0	Very Channery
CNV-L	0	Very Channery & Loam
CNV-SIL	0	Very Channery & Silty Loam
CNV-SL	0	Very Channery & Sandy Loam
CNX	0	Extremely Channery
CNX-SL	0	Extremely Channery & Sandy Loam
COS	0	Coarse Sand
COSL	0	Coarse Sandy Loam
CR	0	Cherty
CRC	1	Coarse Cherty
CR-L	1	Cherty & Loam
CR-SIL	1	Cherty & Silty Loam
CRV	1	Very Cherty
CRV-L	1	Very Cherty & Loam
CRX	1	Extremely Cherty
DE	0	Diotomaceous Earth
FB	0	Fibric Material
FL	0	Flaggy
FL-L	0	Flaggy & Loam
FL-SICL	0	Flaggy & Silty Clay loam
FL-SIL	0	Flaggy & Silty Loam
FLV	1	Very Flaggy
FLX	1	Extremely Flaggy
FLX-L	1	Extremely Flaggy & Loamy
FRAG	0	Fragmental Material
FS	0	Fine Sand
FSL	0	Fine Sandy Loam
G	0	Gravel
GR	0	Gravelly
GRC	0	Course Gravelly
GR-C	0	Gravel & Clay
GR-CL	0	Gravel & Clay Loam
GR-COS	0	Gravel & Course Sand
GR-COSL	0	Gravel & Coarse Sandy Loam
GRF	0	Fine Gravel
GR-FS	0	Gravel & Fine Sand
GR-FSL	0	Gravel & Fine Sandy Loam
GR-L	0	Gravel & Loam
GR-LCOS	0	Gravel & Loamy Course Sand
GR-LFS	0	Gravel & Loamy Fine sand
GR-LS	0	Gravel & Loamy Sand
GR-S	0	Gravel & Sand
GR-SCL	0	Gravel & Sandy Clay Loam
GR-SIC	0	Gravel & Silty Clay

GR-SIL	0	Gravel & Silty Loam
GR-SL	0	Gravel & Sandy Loam
GRV	1	Very Gravelly
GRV-CL	1	Very gravelly & Clay Loam
GRV-COS	1	Very Gravelly & Course Sand
GRV-COSL	1	Very Gravelly & Course Sandy Loam
GRV-FSL	1	Very Gravelly & Fine Sandy Loam
GRV-L	1	Very Gravelly & Loam
GRV-LCOS	1	Very Gravelly & Loamy Course Sand
GRV-LS	1	Very Gravelly & Loamy Sand
GRV-S	1	Very Gravelly & Sand
GRV-SCL	1	Very Gravelly & Sandy Clay Loam
GRV-SIL	1	Very Gravelly & Silt
GRV-SL	1	Very Gravelly & Sandy Loam
GRX	1	Extremely Gravelly
GRX-COS	1	Extremely Gravelly & Coarse Sand
GRX-L	1	Extremely Gravelly & Loam
GRX-S	1	Extremely Gravelly & Sand
GRX-SL	1	Extremely Gravelly & Sandy Loam
GYP	1	Gypsiferous Material
HM	0	Hemic Material
ICE	1	Ice or Frozen Soil
IND	1	Indurated
L	0	Loam
LCOS	0	Loamy Course Sand
LFS	0	Loamy Fine Sand
LS	0	Loamy Sand
LVFS	0	Loamy Very Fine Sand
MARL	0	Marl
MK	0	Mucky
MK-C	0	Mucky Clay
MK-CL	0	Mucky Clay Loam
MK-FSL	0	Muck & Fine Sandy Loam
MK-L	0	Mucky Loam
MK-SIL	0	Mucky Silt
MK-VFSL	0	Mucky & Very Fine Sandy Loam
MPT	0	Mucky Peat
MUCK	0	Muck
PEAT	0	Peat
PT	0	Peaty
RB	1	Rubbly
S	0	Sand
SC	0	Sandy Clay
SCL	0	Sandy Clay Loam
SG	0	Sand and Gravel
SH	0	Shaly
SH-CL	0	Shaly & Clay
SH-L	0	Shale & Loam
SH-SICL	0	Shaly & Silty Clay loam
SH-SIL	0	Shaly & Silt Loam
SHV	1	Very Shaly
SHV-CL	1	Very Shaly & Clay Loam
SHX	1	Extremely Shaly
SI	0	Silt
SIC	0	Silty Clay
SICL	0	Silty Clay Loam
SIL	0	Silt Loam
SL	0	Sandy loam
SP	0	Sapric Material
SR	0	Stratified
ST	0	Stony